



2024 Edition

The banner features a white top section, an orange middle section with the OHDSI logo in the top right corner, and a white bottom section. The text 'Phenotype Phebruary' is written in large, bold, blue letters with a white outline. Below it, the URL 'forums.ohdsi.org' is displayed in white on a dark blue background. At the bottom, the text 'Join The Conversations!' is written in orange.

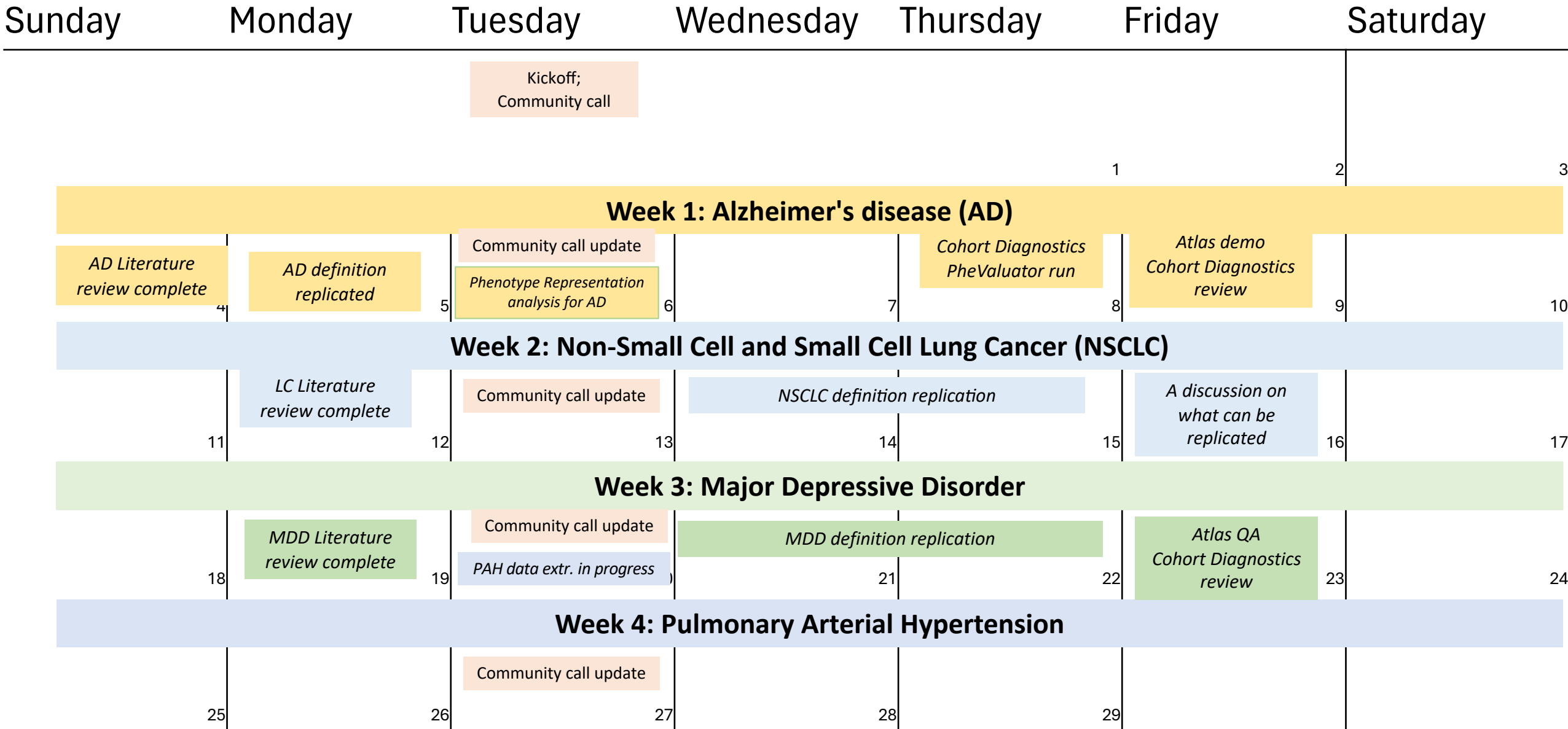
**Phenotype
Phebruary**

forums.ohdsi.org

Join The Conversations!

February 20th, 2024
Community call update

Phenotype Phebruary 2024 Calendar





W1: Alzheimer's disease





Where we are with Alzheimer's


Reviewed the literature -> Replicated the cohorts -> Characterized the patients -> Estimated performing characteristics of the definition

What else can we learn?



Measurement error impact on background incidence

Inputs

- 13 AD definitions
- 7 databases
- SN, SP, PPV, NPV 
 - Joel Swerdel
- Background IR/1000PY
- Errors and IRs age × sex stratified

Impact evaluation

- Correct IR via QBA principles

Sensitivity and specificity approach

$$Outcomes_{Corrected} = (Outcomes - (1 - SP) * Persons_{At-risk}) / (SN - (1 - SP))$$

- Metrics
 - Relative IR
 - Expected absolute measurement error: $abs(\log(\text{relative IR}))$

AD: Alzheimer's disease, SN: sensitivity, SP: specificity, PPV: positive predictive value, NPV: negative predictive value
IR/1000PY: incidence rate per 1000 person-years, QBA quantitative bias analysis



Measurement error impact on background incidence

Harris defn: [2 Dx] OR [2 Rx] OR [1Dx AND 1Rx]; 2nd event [1-365d]

Method
sensSpec

Database
truven_mdcr

Strata
Female >=85

Target
Persons on 1 Jan 2018-2022

Outcome
Alzheimers disease per Harr

Show 10 entries

Search:

databaseId	oName	stratum	TP	TN	FP	FN	sens	spec	ppv	npv
truven_mdcr	Alzheimers disease per Harris JAD 2023	Female >=85	888	56271	414	368	0.70677	0.9927	0.68126	0.99352

Showing 1 to 1 of 1 entries

Previous 1 Next

IP: /1000 P, IR: /1000 PYs

Show 10 entries

Search:

databaseId	method	tName	oName	stratum	IP	cIP	IPrel	IPeame	IR	cIR	IRrel	IReame
truven_mdcr	sensSpec	Persons on 1 Jan 2018-2022	Alzheimers disease per Harris JAD 2023	Female >=85	53.8824	66.6329	1.237	0.212	58.3599	71.6637	1.228	0.205

Showing 1 to 1 of 1 entries

Previous 1 Next



sens: sensitivity, spec: specificity, ppv: positive predictive value, npv: negative predictive value

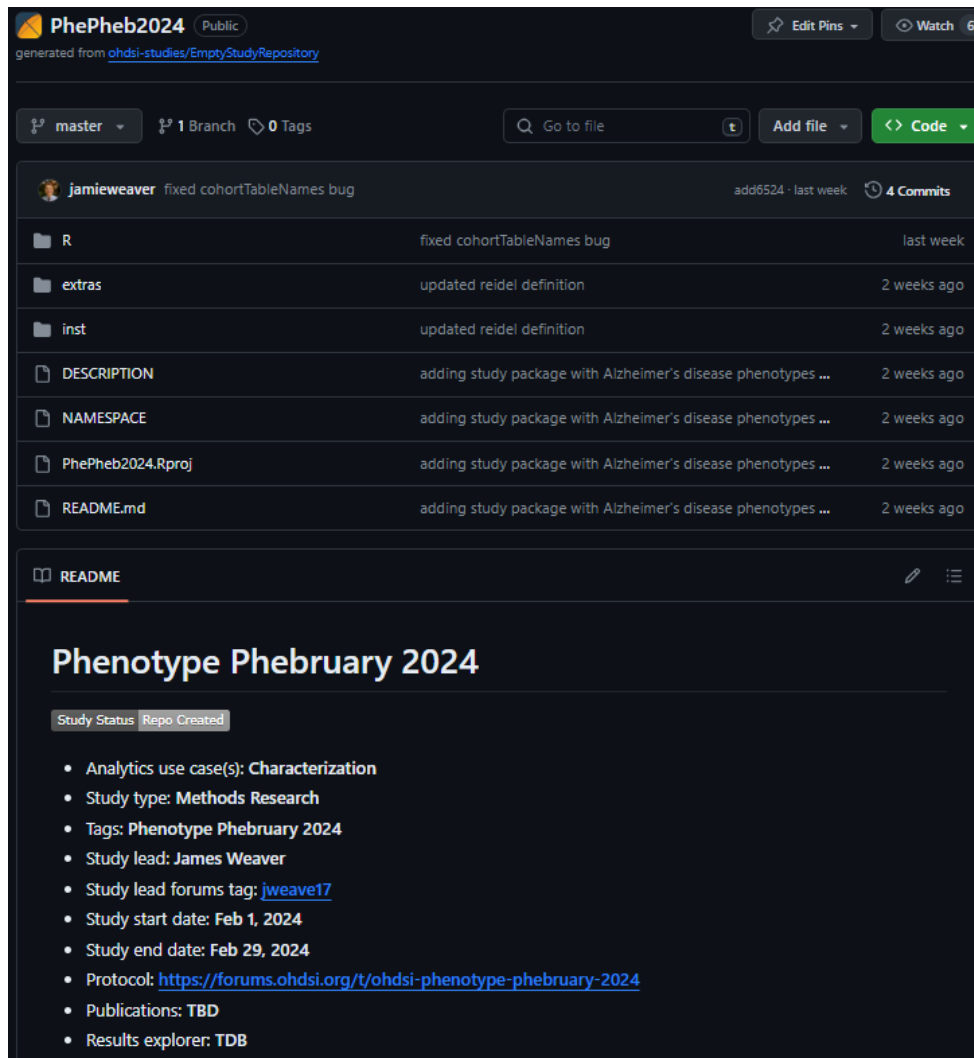
IR: incidence rate/1000 person-years, cIR: corrected IR, IRrel: relative IR, IReame: expected absolute measurement error



Measurement error impact on background incidence

Package update:

- <https://github.com/ohdsi-studies/PhePheb2024>
- Development near complete, thanks  Thomas Falconer
- 4 data partners  signed up to execute



PhePheb2024 Public
generated from [ohdsi-studies/EmptyStudyRepository](#)

master 1 Branch 0 Tags

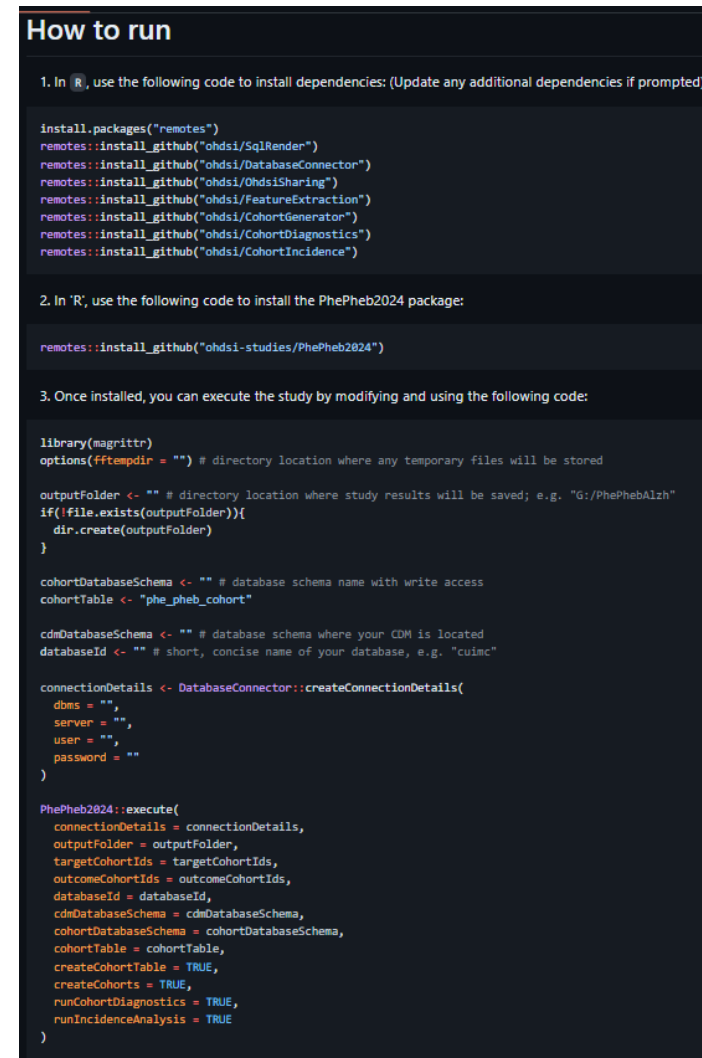
jamieweaver fixed cohortTableNames bug add6524 · last week 4 Commits

File	Commit Message	Time
R	fixed cohortTableNames bug	last week
extras	updated reidel definition	2 weeks ago
inst	updated reidel definition	2 weeks ago
DESCRIPTION	adding study package with Alzheimer's disease phenotypes ...	2 weeks ago
NAMESPACE	adding study package with Alzheimer's disease phenotypes ...	2 weeks ago
PhePheb2024.Rproj	adding study package with Alzheimer's disease phenotypes ...	2 weeks ago
README.md	adding study package with Alzheimer's disease phenotypes ...	2 weeks ago

Phenotype Phebruary 2024

Study Status Repo Created

- Analytics use case(s): Characterization
- Study type: Methods Research
- Tags: Phenotype Phebruary 2024
- Study lead: James Weaver
- Study lead forums tag: [jweave17](#)
- Study start date: Feb 1, 2024
- Study end date: Feb 29, 2024
- Protocol: <https://forums.ohdsi.org/t/ohdsi-phenotype-phebruary-2024>
- Publications: TBD
- Results explorer: TBD



How to run

1. In R, use the following code to install dependencies: (Update any additional dependencies if prompted)

```
install.packages("remotes")
remotes::install_github("ohdsi/SqlRender")
remotes::install_github("ohdsi/DatabaseConnector")
remotes::install_github("ohdsi/OhdsiSharing")
remotes::install_github("ohdsi/FeatureExtraction")
remotes::install_github("ohdsi/CohortGenerator")
remotes::install_github("ohdsi/CohortDiagnostics")
remotes::install_github("ohdsi/CohortIncidence")
```

2. In R, use the following code to install the PhePheb2024 package:

```
remotes::install_github("ohdsi-studies/PhePheb2024")
```

3. Once installed, you can execute the study by modifying and using the following code:

```
library(magrittr)
options(fftempdir = "") # directory location where any temporary files will be stored

outputFolder <- "" # directory location where study results will be saved; e.g. "G:/PheFebAlzh"
if(!file.exists(outputFolder)){
  dir.create(outputFolder)
}

cohortDatabaseSchema <- "" # database schema name with write access
cohortTable <- "phe_pheb_cohort"

cdmDatabaseSchema <- "" # database schema where your CDM is located
databaseId <- "" # short, concise name of your database, e.g. "cuimc"

connectionDetails <- DatabaseConnector::createConnectionDetails(
  dbms = "",
  server = "",
  user = "",
  password = ""
)

PhePheb2024::execute(
  connectionDetails = connectionDetails,
  outputFolder = outputFolder,
  targetCohortIds = targetCohortIds,
  outcomeCohortIds = outcomeCohortIds,
  databaseId = databaseId,
  cdmDatabaseSchema = cdmDatabaseSchema,
  cohortDatabaseSchema = cohortDatabaseSchema,
  cohortTable = cohortTable,
  createCohortTable = TRUE,
  createCohorts = TRUE,
  runCohortDiagnostics = TRUE,
  runIncidenceAnalysis = TRUE
)
```

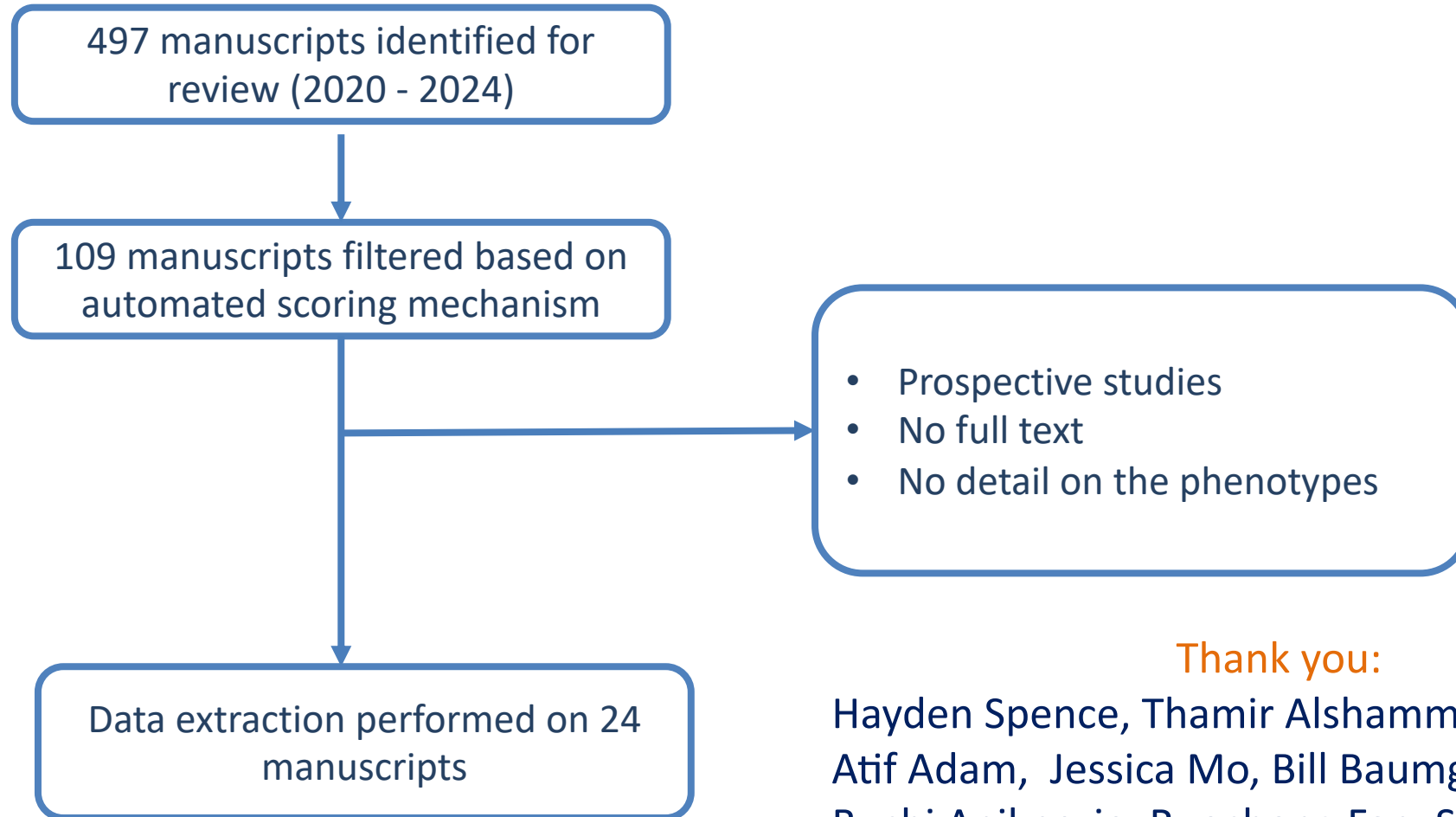


W3: Major Depressive Disorder





What did we do?

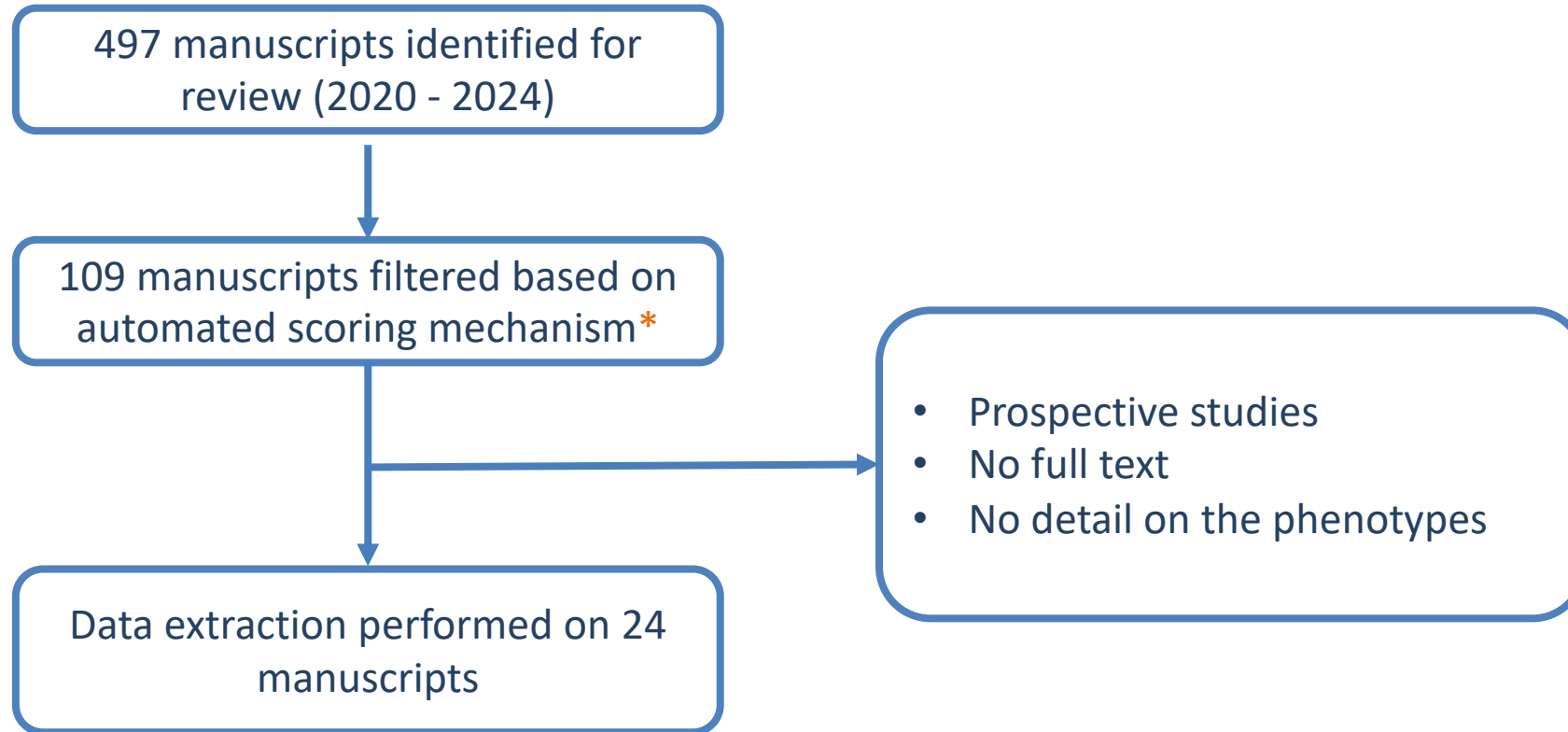


Thank you:

Hayden Spence, Thamir Alshammari,
Atif Adam, Jessica Mo, Bill Baumgartner,
Buchi Anikpezie, Ruochong Fan, Septi Melisa



What did we do?



*Opportunities for automated/systematic lit review to support phenotype development



Do researchers aim at reproducibility or conceptual definitions?

Conceptual definitions: provide some rationale for population chosen and how the criteria selected facilitate capture of such population

Good ex.:

"...To avoid potential bias from other neuropsychiatric conditions, patients were excluded if they had diagnoses for bipolar/manic disorder, mood disorders other than MDD, Alzheimer disease, Parkinson disease, or dementia during the study period..." [aim: cost and utilization]

"...We excluded hospitals wards with fewer than 20 recorded admissions ... this exclusion was made because hospital wards with only sporadic admissions were potentially less likely to report data to the Danish Depression Database because of possible inadequate routines..." [aim: quality of care]

Bad ex.:

Say nothing but exclude codes like F32.5 Major depressive disorder, single episode, in full remission or F32.8 Other depressive episodes



Do researchers aim at reproducibility or conceptual definitions?

Reproducibility

of papers that have codes: 21/24 (*17 put the codes in the body of manuscript*)

2 papers had codes in supplements, but supplements are not accessible

1 paper does not have codes at all

The study population consisted of adults with an episode of depression during the study period with no prior antipsychotic use and no prior diagnosis of bipolar disorder or schizophrenia. Episodes were defined by the prescription of antidepressants and presence of depression diagnoses identified with Read codes. Antidepressant prescriptions were grouped into spells of treatment, separated by gaps

of papers that explicitly state codes: 5/24 (4 in body and 1 in supplements)*

** Does not imply that definitions are reproducible*



Do researchers aim at reproducibility or conceptual definitions?

Reproducibility: OHDSI studies

1 study provided explicit list of ICD10CM and ICD9CM codes (US data sources only)

1 study provided SNOMED ancestor (US + Korea)



Glance at phenotype definitions

Common patterns in concept sets:

- all F32 (Depressive episode) and F33 (recurrent MDD) and/or corresponding ICD9CM
- F33 only
- F32 and F33 excluding codes that mention remission

Common patterns in phenotype definitions:

- 1/2/3 codes with various restrictions (time window, position, etc.)
- exclusion of differential diagnoses (bipolar, psychosis, dementia, etc.)

More details when we replicate the cohorts!

General Posts Files Edit | Data partner si...

New Upload Edit in grid view Share Copy link Sync All Documents

Documents > General > Phenotype Phebruary 2024 > Major depressive disorder (W3) > **2. Cohort replication**

Name	Modified	Modified By	+ Add column
LR abstraction for replication.xlsx	About a minute ago	Anna Ostroplets	



Next steps

- PAH data extraction in progress (BIG THANK YOU)
- MDD cohort replication (sign up in the sheet)
- PAH cohort replication will follow
- Study package (Jamie in contact with data partners)
- Open call to plan the manuscript